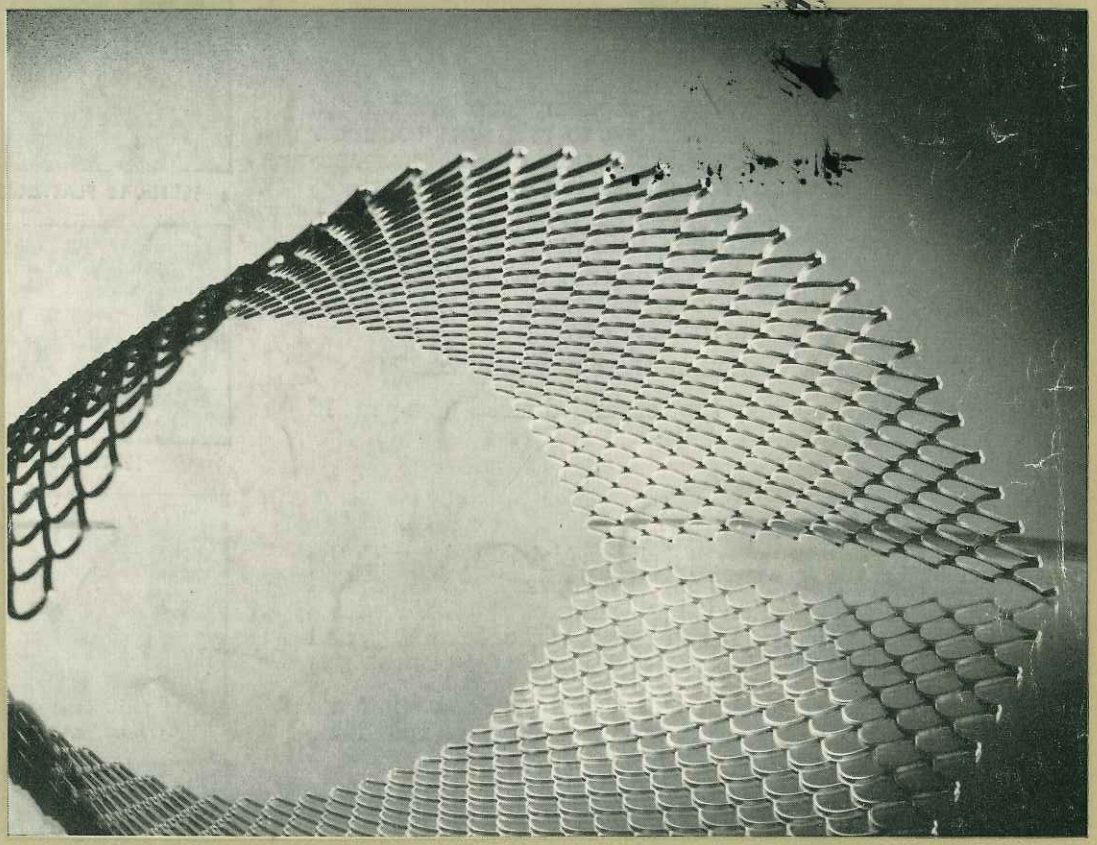
RETURN TO

TECHNICAL INFORMATION

Class 13
No. 100

EXPANDED METALS



RETURN TO
DESIGN DIV.

UNITED STATES GYPSUM

The Greatest Name in Building

General Offices: 300 West Adams St., Chicago 6, Ill.

1957

USG
UNITED STATES GYPSUM

EXPANDED METALS BY UNITED STATES GYPSUM

Description

Below: are the USG Expanded Metals which impart their advantages to thousands of applications to make them lighter, stronger and more attractive.

EXPAND-X* expanded metal is the diamond-shaped product in unflattened form. The strands and bonds are at a sharp angle to the original plane of the sheet. This factor adds strength to the expanded product.

FLATTENED EXPAND-X is made by passing the diamond-shaped expanded metal between pressure rolls. These flatten the material so that strands and bonds are in the same plane. This produces a material suitable for applications where a smooth flat surface is desirable.

DECORATIVE SERIES. At a time when our economy has demonstrated its greatest need for product innovations to stimulate consumer buying, United States Gypsum presents advanced designs in expanded metals to stimulate creation of new ideas in product design.

Four dramatic new expanded metals—RONDO, FESTOON, WAVELENGTH and ARMORWEAVE—join the accepted and widely used EXPAND-X to offer an exciting new quintet of expanded metals that open new frontiers for everyone concerned with design, manufacture and sale of products for better living.

See pages 8 to 11 for information on these new products.

GRATE-X* metal grating, a heavy type expanded metal (See page 12 for detailed information).

Advantages

Made in a wide selection of gauges and sizes. Light weight, with the other "plus" features of expanded metal compared to the original solid sheet. Since its introduction it has been a new material with a "thousand and one" new uses. It can be cut without raveling, and formed or welded.

Choice of Materials. Carbon steel, stainless steel, and aluminum are available from stock. Copper, brass, bronze and other expandable metals may be had on special order.

Fabricating and Finishing

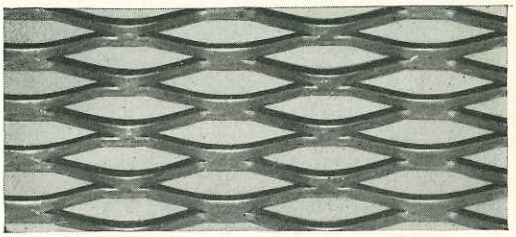
Welding—Arc, resistance or brazing methods can be used. Absence of scale on the mesh facilitates welding processes and makes a first class weld possible.

Painting—Both EXPAND-X and FLATTENED EXPAND-X are shipped unpainted. The material can be painted, but should be clean and free from grease, and hung at an angle to prevent collecting of paint at bonds.

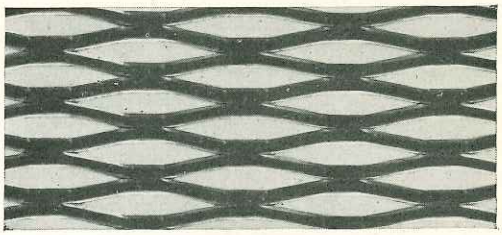
Design Service. We have a staff of engineers ready to work with users to get the best results from EXPAND-X, FLATTENED EXPAND-X and DECORATIVE EXPAND-X. This involves no obligation and promotes a better understanding of practices, and assures a more satisfactory result.

See page 12 for a listing of offices where information concerning design and sales service is available.

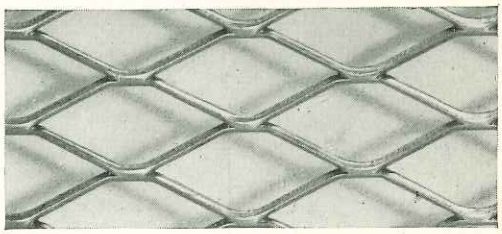
*T.M. Reg. U. S. Pat. Off.



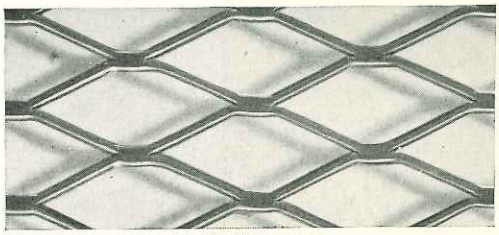
¼" No. 18 EXPAND-X (Actual Size)



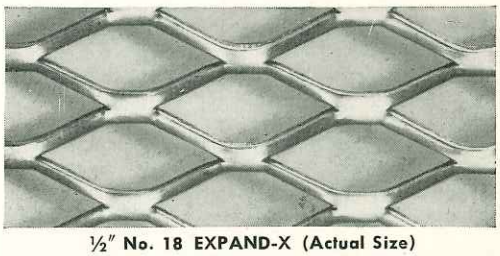
¼" No. 18 FLATTENED EXPAND-X (Actual Size)



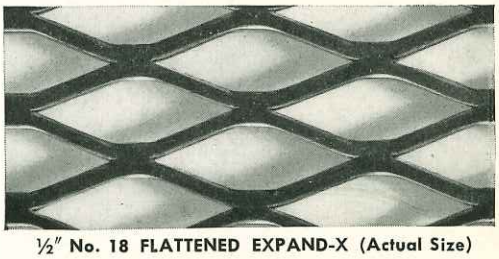
½" No. 40 EXPAND-X (Actual Size)



½" No. 40 FLATTENED EXPAND-X (Actual Size)



½" No. 18 EXPAND-X (Actual Size)



½" No. 18 FLATTENED EXPAND-X (Actual Size)

"GRATE-X" and "EXPAND-X" are registered trade-marks, and "RONDO", "FESTOON", "WAVELENGTH", and "ARMORWEAVE" are trade-marks owned by the United States Gypsum Company, and all identify the particular expanded metal manufactured only by United States Gypsum Company.

Function and Utility

CARBON STEEL EXPAND-X. Carbon Steel EXPAND-X and FLATTENED EXPAND-X, in addition to the inherent characteristics of solid sheet steel, combine light weight with the many other unique advantages of expanded metal over its original sheet form.

There are no rivets or welded joints except where units are joined. Strands of unflattened expanded metal are at an angle, thus distributing strain in many directions to the supporting structure and improving rigidity and bending resistance.

The large percentage of open area permits maximum passage of air and light.

The material can be readily cut into desired shapes without danger of raveled strands, and may be welded, bent and formed, drawn and flared. It is economical to apply and maintain. Various weights and sizes are available to meet varying needs.

There are a vast number of applications and uses for carbon steel EXPAND-X and FLATTENED EXPAND-X.

STAINLESS STEEL EXPAND-X. Stainless EXPAND-X and FLATTENED EXPAND-X offer industry a material with the happy combination of the advantages inherent in stainless steel plus the advantages peculiar to the design of expanded metal. To engineers and product designers, this means new and improved products and equipment.

The stainless material is highly resistant to most types of corrosion and oxidation. This makes it ideal for applications in chemical, oil, textile, food processing, meat packing, dairy and beverage industries; household, surgical and marine equipment and electrical appliances.

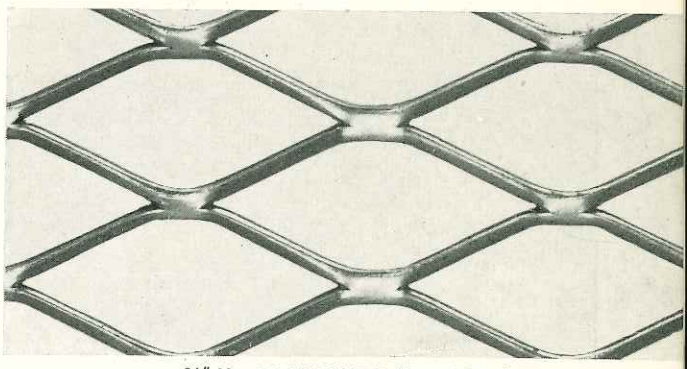
For further information on stainless EXPAND-X and FLATTENED EXPAND-X and where it can be used, write for our technical pamphlet, "Stainless EXPAND-X."

ALUMINUM EXPAND-X. Aluminum EXPAND-X and FLATTENED EXPAND-X—a new material for industry, with all the advantages of aluminum, plus—lighter weight—a clean attractive design, which are added in the expanding process. Light weight—almost featherlight—with the unflattened expanded metal having many better performance properties than in its original sheet form—permits lighter weight equipment and appliances to ease work in industry and in the home.

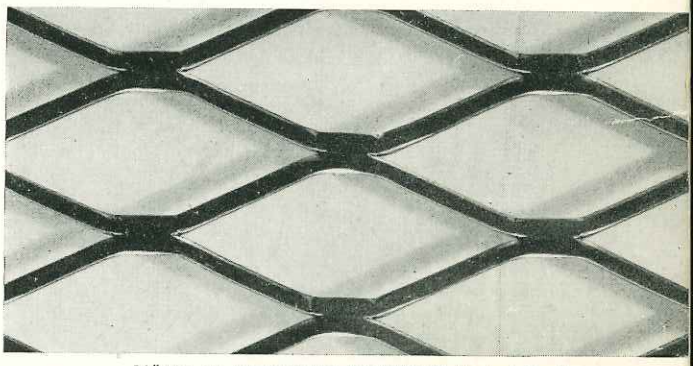
The highly pleasing appearance of Aluminum EXPAND-X and FLATTENED EXPAND-X—its clean, geometric design, its lasting, corrosion-resisting, satiny finish—suggest a multitude of uses for products of unusual beauty. Food processing and chemical industries, especially, will find many uses for this new material. Maintenance costs of the aluminum material are negligible.

Aluminum EXPAND-X and FLATTENED EXPAND-X expanded metal fabricate easily, can be cut without raveling and be formed or welded.

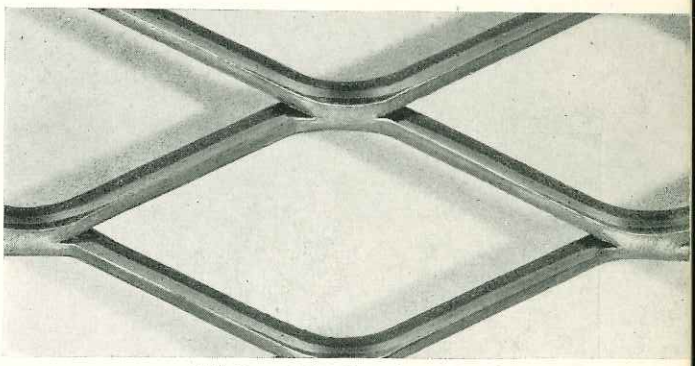
The wide variety of uses and applications of aluminum EXPAND-X and FLATTENED EXPAND-X includes many in the automotive, building, chemical, textile, mining, food processing and meat packing industries; electrical appliances, furniture, household, farming, photographic and sports equipment. For further information write for our technical pamphlet, "Aluminum EXPAND-X."



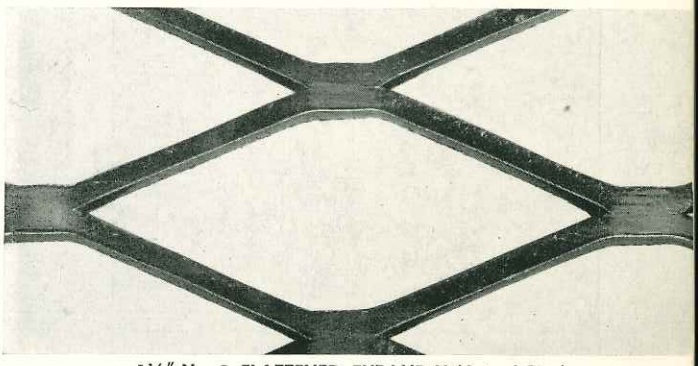
¾" No. 16 EXPAND-X (Actual Size)



¾" No. 16 FLATTENED EXPAND-X (Actual Size)



1½" No. 9 EXPAND-X (Actual Size)

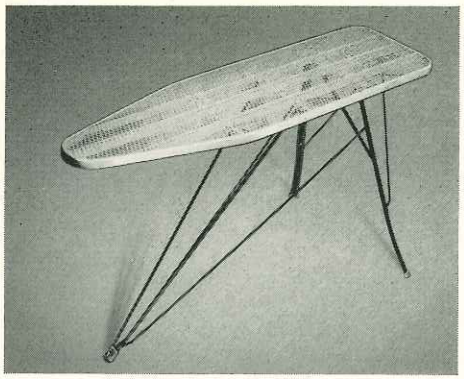


1½" No. 9 FLATTENED EXPAND-X (Actual Size)

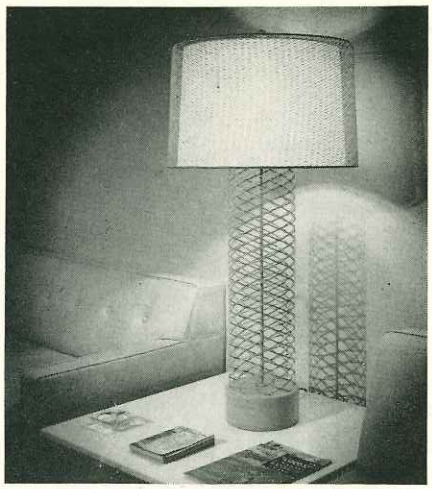
EXPAND-X EXPANDED METAL

TYPICAL APPLICATIONS OF EXPAND-X

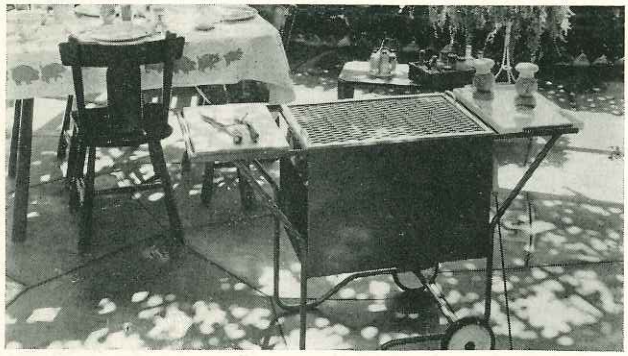
Support for vacuum cleaner filter of ¾ No. 16 Flattened EXPAND-X



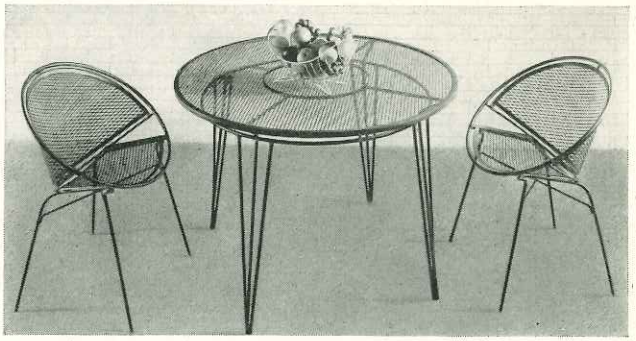
Ironing Board Top of ⅜ No. 20 Flattened EXPAND-X allows free passage of steam.



Lamp body of ¾ No. 16 Flattened EXPAND-X and shade of INDUSTRIAL DIAMOND MESH LATH.

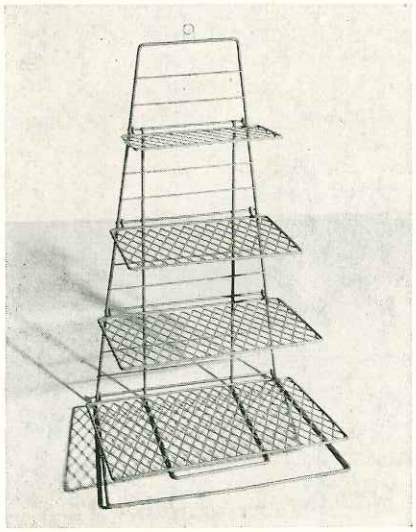


Smooth sturdy grille tray of ¾ No. 9 Flattened EXPAND-X



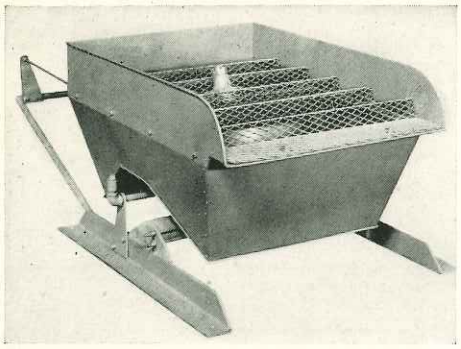
Versatile Round Table and side chairs from ½ No. 18 Flattened EXPAND-X.

Functional window display using ½ No. 18 Flattened EXPAND-X



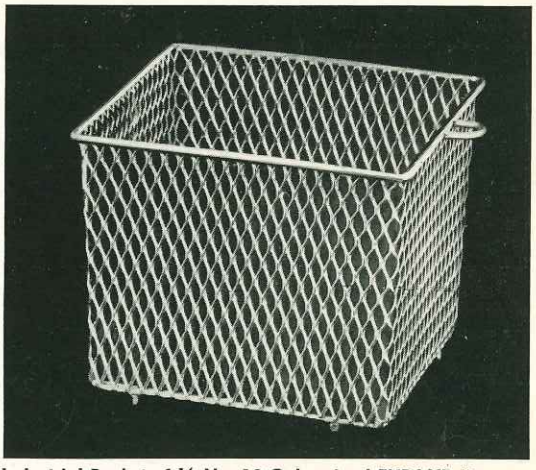
Light weight display stand from ¾ No. 13 EXPAND-X

Decorative table and arm chair group using new ½ No. 18 RONDO Type F.

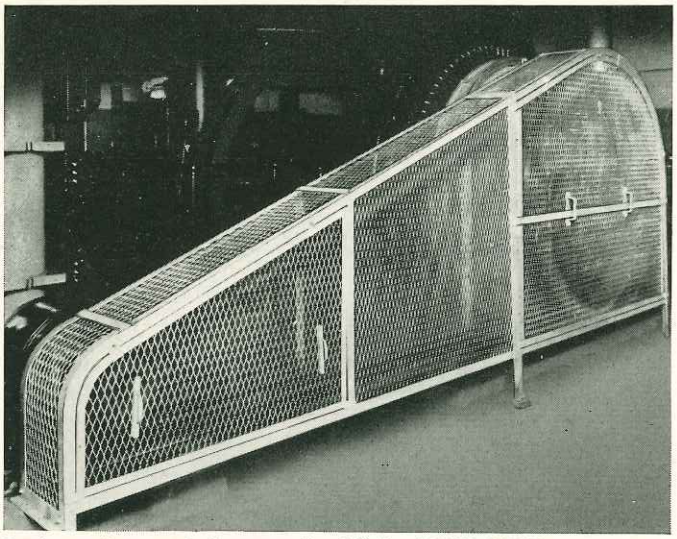


Rugged Gyrator screen of ¾ No. 9 EXPAND-X.

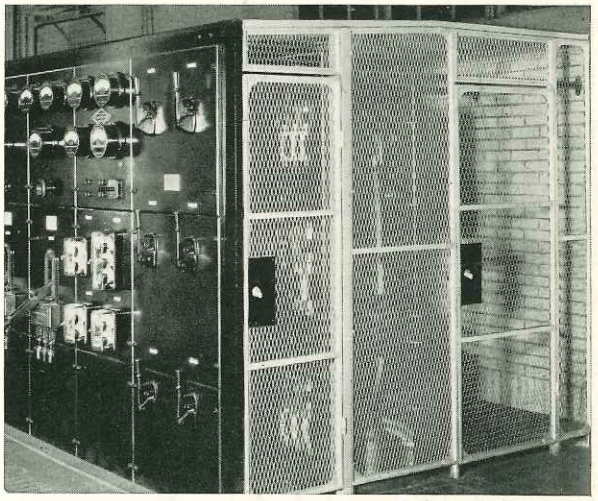
Photo-Print washer with non-corrosive drum of ½ No. 18 Flattened, Stainless EXPAND-X.



Industrial Basket of ½ No. 18 Galvanized EXPAND-X combines strength with easy passage of light and air.

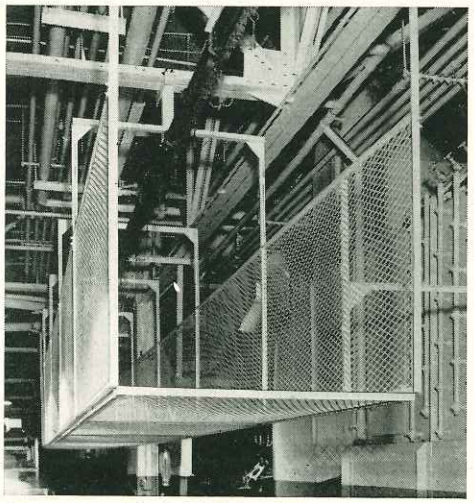


Sturdy machine guard of non-raveling 1½ No. 13 EXPAND-X



Protective enclosure of ¾ No. 9 Flattened EXPAND-X.

Storage shelves of ½ No. 16 Flattened EXPAND-X stay cleaner and pass light to storage areas.

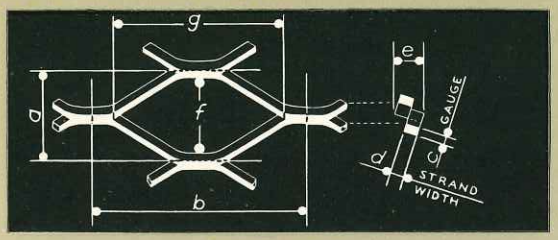


Conveyor guard of 1½ No. 9 Flattened EXPAND-X gives excellent protection against falling objects.

Grille of ½ No. 18 Flattened EXPAND-X protects delicate instruments.

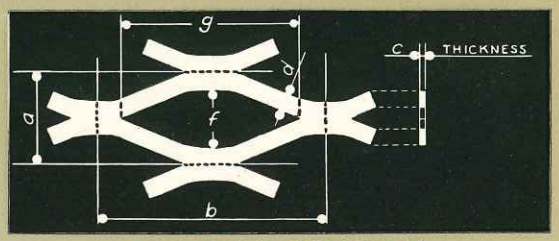
EXPAND-X EXPANDED METAL

SPECIFICATIONS



EXPAND-X

All weights and dimensions are approximate



FLATTENED EXPAND-X

Styles Available	Wt. Lbs. C Sq. Ft. Black	Wt. Lbs. C Sq. Ft. Galv.	Diamond Size a x b inches	Opening Size f x g inches	Strand c x d inches	Overall Thickness e inches	Standard Sheet Size width	Standard Sheet Size length	Per Cent Open Area	U. S. Std. Gauge Steel Used
Carbon Steel EXPAND-X										
¼″—No. 18	117	159	.26 x1	.125x .687	.047x.076	.125	4′	8′	40	18
½″—No. 40	40	60	.497x1.195	.406x .937	.047x.050	.110	4′	8′	83	18
½″—No. 20	43	59	.459x1.120	.375x .875	.036x.066	.134	4′	8′	71	20
½″—No. 18	70	84	.507x1.195	.375x .950	.047x.089	.161	4′ & 6′	8′ & 10′	65	18
½″—No. 16	87	104	.507x1.195	.375x .890	.059x.089	.159	4′ & 6′	8′ & 10′	65	16
½″—No. 13	146	175	.503x1.2	.350x .900	.089x.098	.199	4′ & 6′6″	8′	61	13
¾″—No. 34	34	51	.865x2.0	.750x1.688	.059x.060	.129	4′	8′	85	16
¾″—No. 16	54	65	.880x2.0	.700x1.640	.059x.095	.183	4′ & 6′6″	8′	76	16
¾″—No. 13	80	93	.880x2.0	.734x1.640	.089x.095	.185	4′ & 6′	8′ & 10′	76	13
¾″—No. 10	119	133	.889x2.0	.675x1.563	.089x.141	.277	4′	8′	69	13
¾″—No. 9	180	202	.857x2.0	.600x1.45	.134x.137	.290	4′ & 6′	8′ & 10′	68	10
1″ —No. 16	47	55	1.01 x2.375	.875x1.937	.059x.095	.196	4′	8′	82	16
1½″—No. 16	40	47	1.35 x3.125*	1.180x2.813	.059x.112	.210	4′	8′	85	16
1½″—No. 13	60	68	1.35 x3.125*	1.200x2.688	.089x.112	.213	4′ & 6′	8′ & 10′	85	13
1½″—No. 10	79	87	1.33 x3.00	1.156x2.52	.089x.140	.248	4′ & 6′	8′ & 10′	81	13
1½″—No. 9	119	129	1.33 x3.00	1.140x2.43	.134x.141	.289	4′ & 6′	8′ & 10′	76	10
Carbon Steel FLATTENED EXPAND-X										
¼″—No. 18	113	159	.26 x1.03	.088x .70	.042x.086	....	4′	8′	34	18
½″—No. 40	39	60	.497x1.23	.371x1.00	.038x.063	....	4′	8′	75	18
½″—No. 20	41	42	.438x1.25	.313x .938	.032x.070	....	3′ & 4′	8′	64	20
½″—No. 18	66	88	.507x1.26	.289x1.00	.038x.109	....	3′ & 4′	8′	58	18
½″—No. 16	82	112	.507x1.26	.301x1.00	.050x.103	....	3′ & 4′	8′	60	16
½″—No. 13	138	175	.503x1.26	.259x .97	.070x.122	....	3′ & 4′	8′	52	13
¾″—No. 34	32	51	.865x2.10	.709x1.75	.045x.078	....	3′ & 4′	8′	83	16
¾″—No. 16	51	71	.880x2.10	.650x1.75	.048x.115	....	3′ & 4′	8′	74	16
¾″—No. 14	68	70	.880x2.10	.642x1.75	.063x.119	....	3′ & 4′	8′	73	14
¾″—No. 13	76	93	.880x2.10	.642x1.75	.070x.119	....	3′ & 4′	8′	73	13
¾″—No. 9	171	195	.857x2.10	.529x1.63	.110x.164	....	3′ & 4′	8′	62	10
1″ —No. 16	46	55	1.01 x2.50	.780x2.06	.048x.115	....	3′ & 4′	8′	78	16
1½″—No. 16	29	40	1.35 x3.25	1.14 x2.88	.048x.103	....	3′ & 4′	8′	85	16
1½″—No. 14	53	63	1.350x3.28	1.070x2.88	.063x.138	....	3′ & 4′	8′	80	14
1½″—No. 13	57	68	1.35 x3.28	1.07 x2.88	.070x.138	....	3′ & 4′	8′	80	13
1½″—No. 9	113	129	1.35 x3.25	1.00 x2.62	.106x.175	....	3′ & 4′	8′	74	10

Carbon Steel

Units are formed from soft open hearth steel sheets.

Finishes—Carbon steel EXPAND-X and FLATTENED EXPAND-X is shipped unpainted and without special finishes. EXPAND-X will take most any type of coating. Nickel plating, chrome plating, copper plating or a good paint job can be given to this material because it has a smooth surface and is readily adapted to high grade finishing. Both EXPAND-X and FLATTENED EXPAND-X can be rubber coated either by the anodic process or by dipping.

Stainless Steel

Units are formed from alloy Type 305, 18-8 (18 chrome, 8 nickel) free spinning stainless sheets. Certain other alloy types of expanded stainless steel can be furnished upon request.

Finish—Shipped unbuffed and unpolished.

Aluminum

Units are formed from aluminum alloy type 3003-H14. While other alloy types may be adaptable to expanding, 3003-H14 was found to be best suited to the expanding operation, and was also chosen because of its wide utility, high corrosion resistance, adequate strength, and low cost.

Finish—Shipped unbuffed and unpolished.

Ordering Information

STYLE—The style numbers designate the various meshes. The first figure is the nominal width of the diamond. The second figure identifies the style. In some cases, this figure corresponds with the gauge of the sheet before expanding. Specify regular or flattened sheets.

Specifying Sheet Size

WIDTH—The width of the sheet is measured the *short way of the diamond* (SWD).

LENGTH—The length of the sheet is measured the *long way of the diamond* (LWD).

When ordering expanded metal specify "SWD" and "LWD" after the width and length of the sheet. Give width of the sheet first.

Example: A sheet 36″ the short way of the diamond by 96″ the long way of the diamond should be written—

36″ SWD x 96″ LWD

(Note SWD dimension is given first)

NOTE—All dimensions and weights are approximate

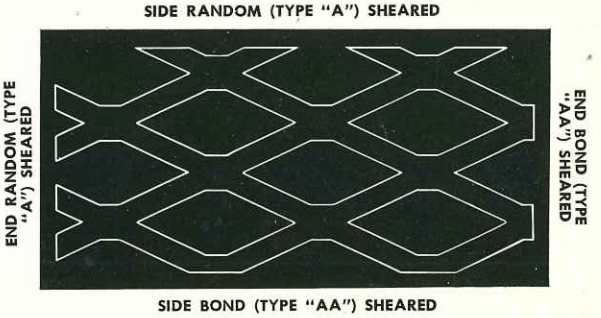
Styles Available	Wt. Lbs. C Sq. Ft.	Diamond Size a x b inches	Opening Size f x g inches	Strand c x d inches	Overall Thickness e inches	Standard Sheet Size width	Standard Sheet Size length	Per Cent Open Area	U. S. Std. Gauge Steel Used
Stainless Steel EXPAND-X									
½″—No. 18	73	.475x1.20	.359x .906	.050x.082	.154	3′ & 4′	8′	65	18
½″—No. 16	91	.475x1.20	.359x .875	.062x.082	.161	3′ & 4′	8′	65	16
¾″—No. 18	48	.828x2.00	.719x1.656	.050x.096	.176	3′ & 4′	8′	77	18
¾″—No. 16	60	.828x2.00	.672x1.656	.062x.096	.178	3′ & 4′	8′	77	16
¾″—No. 13	91	.828x2.00	.672x1.563	.093x.096	.192	3′ & 4′	8′	77	13
¾″—No. 9	205	.828x2.00	.500x1.375	.140x.144	.294	3′ & 4′	8′	65	10
1½″—No. 16	45	1.333x3.00	1.180x2.813	.062x.115	.296	3′ & 4′	8′	83	16
1½″—No. 13	68	1.333x3.00	1.156x2.640	.093x.115	.221	3′ & 4′	8′	83	13
1½″—No. 9	137	1.333x3.00	1.125x2.500	.140x.154	.267	3′ & 4′	8′	77	10
Stainless Steel FLATTENED EXPAND-X									
½″—No. 18	69	.475x1.26	.297x1.031	.042x.093	....	3′ & 4′	8′	61	18
½″—No. 16	86	.475x1.26	.297x1.031	.052x.093	....	3′ & 4′	8′	61	16
¾″—No. 18	46	.828x2.10	.656x1.813	.042x1.08	....	3′ & 4′	8′	74	18
¾″—No. 16	57	.828x2.10	.672x1.813	.052x.108	....	3′ & 4′	8′	74	16
¾″—No. 13	88	.828x2.10	.578x1.781	.079x.108	....	3′ & 4′	8′	74	13
¾″—No. 9	198	.828x2.10	.500x1.563	.119x.160	....	3′ & 4′	8′	61	10
1½″—No. 16	43	1.333x3.15	1.031x2.875	.052x.124	....	3′ & 4′	8′	81	16
1½″—No. 13	66	1.333x3.15	1.016x2.525	.079x.124	....	3′ & 4′	8′	81	13
1½″—No. 9	133	1.333x3.15	.906x2.658	.119x.165	....	3′ & 4′	8′	75	10

Style	Lbs. Per Sq. Ft.	Mesh Size a x b inches	Opening Size f x g inches	Strand c x d inches	Std. Sheet Sizes width (SWD)	Std. Sheet Sizes length (LWD)	B & S Gauge No.	Equivalent Thickness in Steel (USS Gauge No.)	Per Cent Open Area
Aluminum EXPAND-X									
½″—No. .051	.27	.507x1.195	.375x .950	.051x.089	4′	8′	16	18	65
½″—No. .081	.44	.507x1.195	.375x .890	.081x.089	4′	8′	12	14	65
¾″—No. .051	.17	.880x2.000	.700x1.640	.051x.095	4′	8′	16	18	78
¾″—No. .081 (Lt.)	.32	.880x2.000	.700x1.640	.081x.095	4′	8′	12	14	78
¾″—No. .081 (Hvy.)	.41	.880x2.000	.734x1.640	.081x.141	4′	8′	12	14	68
¾″—No. .125	.65	.889x2.000	.675x1.563	.125x.141	4′	8′	8	11	68
1½″—No. .081	.22	1.350x3.125	1.200x2.688	.081x.112	4′	8′	12	14	83
1½″—No. .125	.43	1.330x3.125	1.140x2.531	.125x.141	4′	8′	8	11	79
Aluminum FLATTENED EXPAND-X									
½″—No. .051	.27	.509x1.250	.328x1.000	.045x.091	4′	8′	16	18	64
½″—No. .081	.44	.525x1.271	.297x1.000	.067x.103	4′	8′	12	14	59
¾″—No. .051	.17	.893x2.125	.625x1.750	.040x.104	4′	8′	16	18	76
¾″—No. .081 (Lt.)	.32	.893x2.125	.635x1.750	.070x.120	4′	8′	12	14	72
¾″—No. .081 (Hvy.)	.41	.893x2.125	.547x1.750	.070x.165	4′	8′	12	14	63
¾″—No. .125	.65	.906x2.156	.563x1.750	.095x.163	4′	8′	8	11	63
1½″—No. .081	.22	1.375x3.313	1.094x2.938	.055x.144	4′	8′	12	14	77
1½″—No. .125	.43	1.313x3.344	.938x2.750	.080x.194	4′	8′	8	11	70

TYPES OF SHEARING AVAILABLE

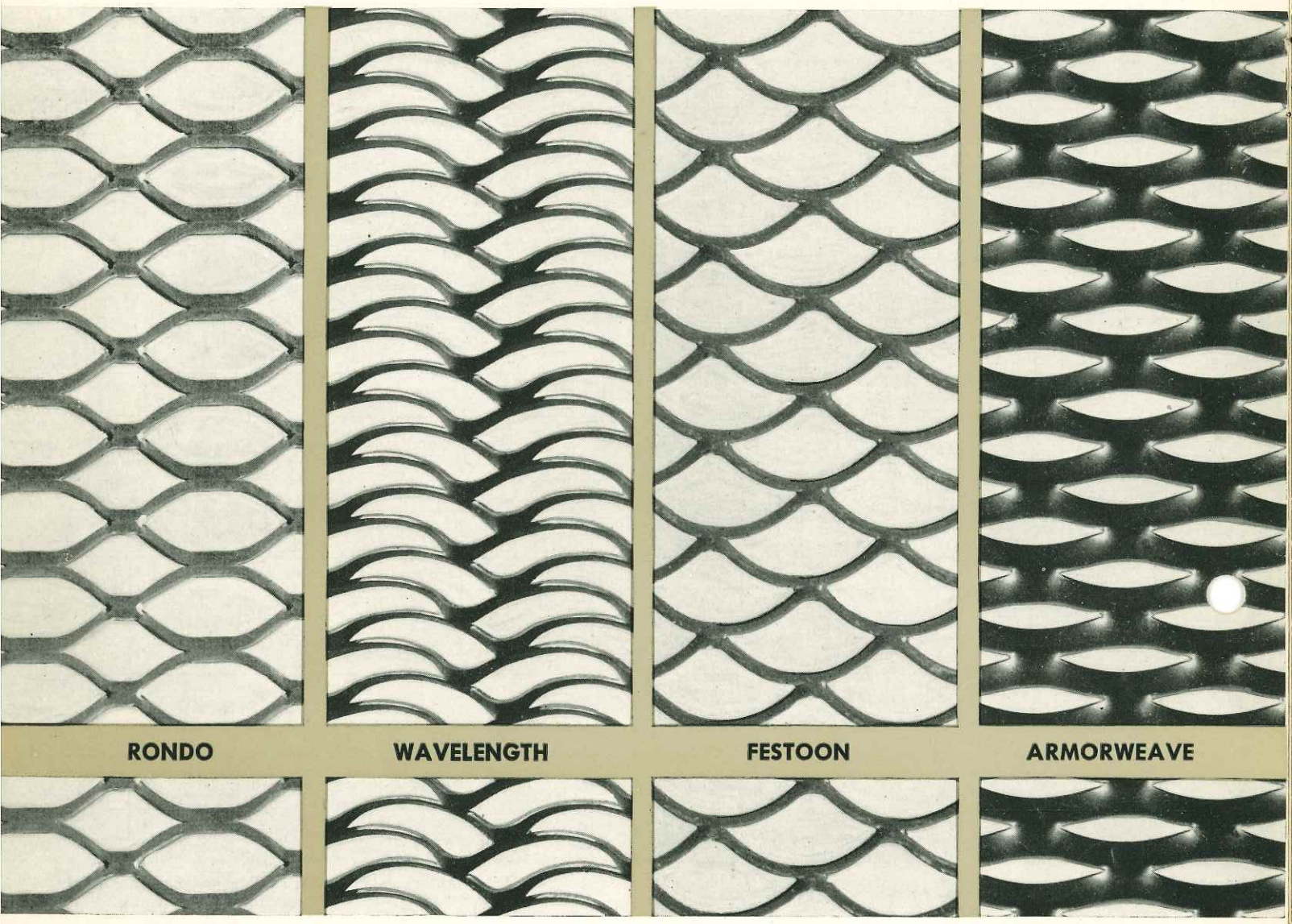
SIDE SHEARING—(Parallel to long dimension of diamond.)
Random (Type "A") Shearing—Cut to width (SWD) specified, with tolerance of plus or minus 1/16″. This type of shearing will usually leave jagged edges.
Bond (Type "AA") Shearing—Cut on center line of first bond *over* specified width. Tolerance, minus 0, plus ½ diamond.
Limitations: Bond shearing cannot be furnished on meshes smaller than ½″ nor on ½″ No. 40 or ¾″ No. 34 EXPAND-X or Flattened EXPAND-X.
Sizing—(Flattened EXPAND-X only). Sizing is an operation that provides Bond shearing, and stretching to a specified width (SWD). Limited to ¾″ and 1½″ meshes in carbon steel only, not heavier than No. 13 gauge. All orders for sized Flattened EXPAND-X subject to our ability to produce. Sizing tolerance is plus or minus 1/16″.
END SHEARING—(Parallel to short dimension of diamond.)
Random (Type "A") Shearing—Cut to length (LWD) specified, with tolerance of plus or minus 1/16″. This type of shearing will usually leave prongs at both ends.
Bond (Type "AA") Shearing—Cut to length (LWD) specified, with tolerance of plus or minus 1/16″. One end to be cut on center line of bond.

Exception: When orders specify bond cutting *both ends*, material will be sheared to nearest bond over specified dimension. Tolerance will be minus 0, plus ½ diamond.
SQUARENESS—Maximum "out of squareness" of all sheared material (when all four sides are sheared), shall not exceed 1/16″ per foot of length.



DECORATIVE EXPANDED METALS

FOUR NEW USG PATTERNS



DESIGN POSSIBILITIES UNLIMITED

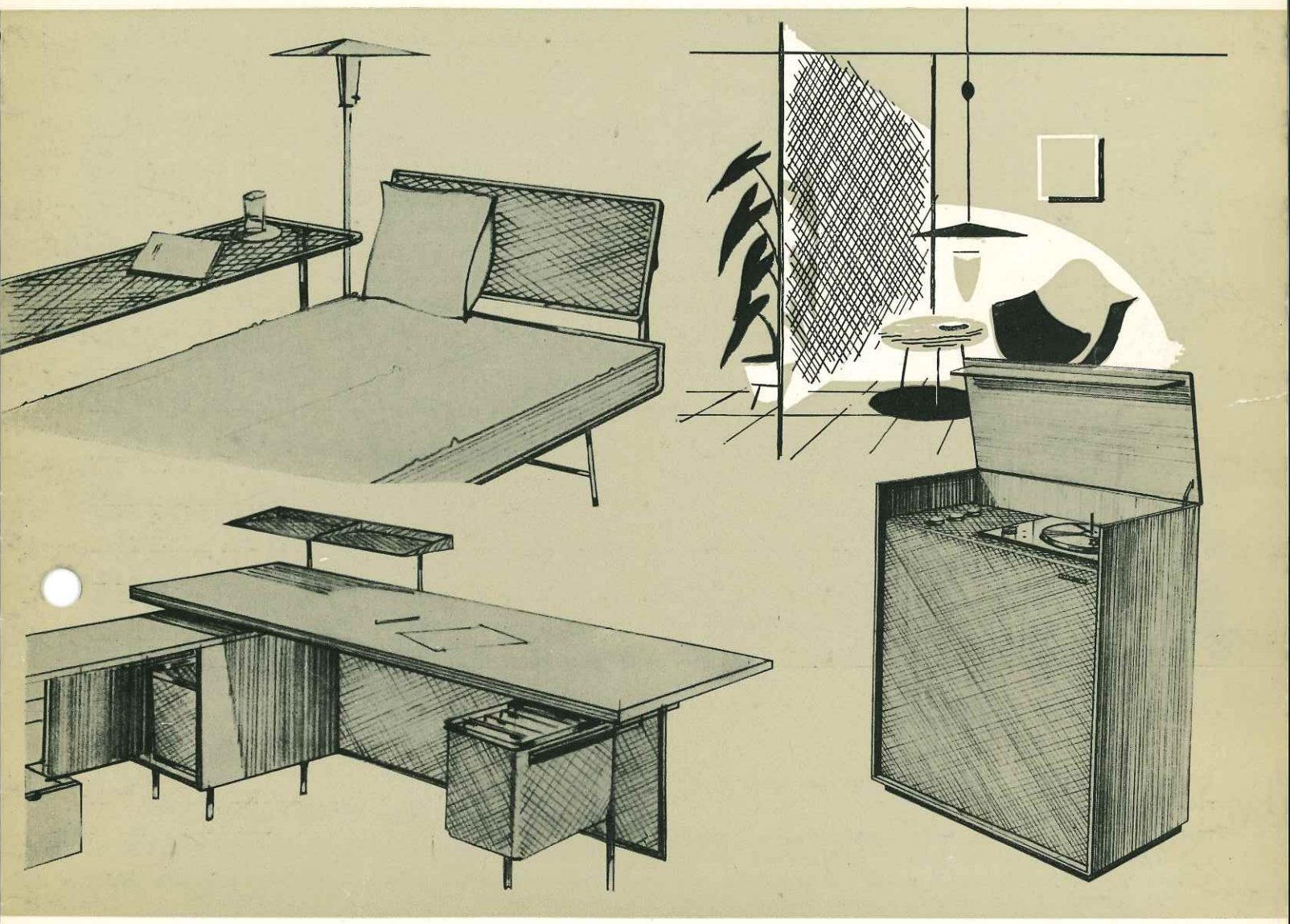
These imaginative new meshes offer design possibilities unlimited. Each expanded metal pattern is versatile enough to serve as the main design element, or to lend a valuable assist in the form of ornamental decoration.

In the furniture field U. S. Gypsum Expanded Metals lend themselves to design of chairs, tables, screens, cabinet doors, breakfront, radio and TV grilles. In housewares and novelties, they improve the beauty and utility of flower pot stands, wastebaskets, hanging shelves, hostess trays, planters, bird cages and fruit bowls. Architects and decorators will find these meshes ideal for design of screens, room dividers, book shelves, ornamental trims, grilles, ceilings and partitions.

USG Expanded Metals have useful applications in industry too. Protection, utility and improved appearance in industrial plants and products are realistic needs these metals serve. Protective enclosures, industrial baskets, ventilator panels, filter screens and sorting bins are a few of the vital uses these sturdy, see-through metals provide.

These versatile meshes are available in carbon steel, aluminum and, in some meshes, stainless steel. In manufacture, sheets of metal are slit and cold-drawn into continuous patterns. The strands and bonds of resulting meshes come to rest at a sharp angle to the original plane of the sheet, adding rigidity. Expanded metals in this form have thousands of uses. U. S. G. also produces these new meshes flattened by pressure rolls, for applications where a smooth surface is desired.

WIDE APPLICATION OF USG DECORATIVE EXPANDED METALS

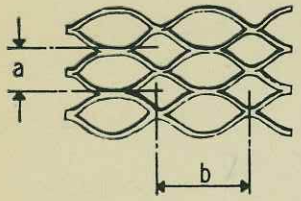


REPRESENTATIVE APPLICATIONS

Ash tray stands
Utility racks and baskets
Magazine racks
Ornamental wastebaskets
Ornamental wares
Flowerpot stands
Ornamental trim
Fancy hanging shelves
Objets d'art
Sewing trays
Edging or trim on display racks
Beverage racks
Hostess trays
Planters
Ornamental bric-a-brac
Picture frame trim
Bird cages
Jardinieres
Flower boxes
Fruit bowls
Powder boxes
Lamps
Kitchen spice racks
Window displays
Prefabricated advertising displays
Department store interior displays
Department store Christmas displays
Demountable display board
Ornamental wall hangings
Space dividers
Screens
Ornamental grilles
Stair well trims
Ornamental partitions
Storm door guards
Screen door guards
Fluorescent lighting units
Store front facades
Book shelves
Chair seats
Chair backs
Table trims
Table shelves
Hassocks
Cocktail tables
Serving carts
Card table tops and chairs
Various tables
Ornamental screens
Trim for wood furniture
Breakfront grilles
Cabinet doors
Porch furniture
Bed headboards
TV and radio grilles

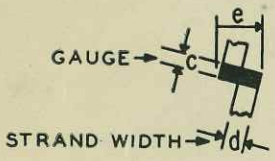
DECORATIVE EXPANDED METALS

SPECIFICATIONS



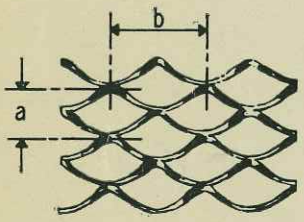
RONDO (carbon steel)

RONDO	TYPE R—REGULAR			TYPE F—CR FLATTENED		
	½"—#16	½"—#18	½"—#20	½"—#16	½"—#18	½"—#20
Wt. Lbs. C Sq. Ft.	86	71	52	78	64	47
Design Size a x b in inches	.520 x 1.195	.520 x 1.195	.520 x 1.195	.625 x 1.195	.625 x 1.195	.625 x 1.195
Opening Size Width x Length in Inches	.438 x .938	.438 x .938	.469 x .938	.469 x .938	.438 x .938	.500 x .938
Strand c x d in inches	.060 x .089	.048 x .089	.036 x .089	.051 x .100	.040 x .100	.300 x .100
Overall Thickness e in Inches	.163	.163	.163	—	—	—
Standard Sheet Size	4′ x 8′	4′ x 8′	4′ x 8′	8′ x 4′	8′ x 4′	8′ x 4′
Per Cent Open Area	65	65	65	59	59	59
U. S. Std. Ga. Steel Used	16	18	20	16	18	20



FESTOON (carbon steel)

FESTOON	TYPE R—REGULAR			TYPE F—CR FLATTENED		
	½"—#16	½"—#18	½"—#20	½"—#16	½"—#18	½"—#20
Wt. Lbs. C Sq. Ft.	72	58	43	65	52	39
Design Size a x b in inches	.625 x 1.2	.625 x 1.2	.625 x 1.2	.688 x 1.2	.688 x 1.2	.688 x 1.2
Opening Size Width x Length in Inches	.500 x .938	.500 x .938	.507 x .938	.540 x 1.0	.500 x 1.0	.550 x 1.0
Strand c x d in inches	.060 x .090	.048 x .090	.036 x .090	.510 x .100	.040 x .100	.030 x .100
Overall Thickness e in Inches	.175	.175	.175	—	—	—
Standard Sheet Size	4′ x 8′	4′ x 8′	4′ x 8′	8′ x 4′	8′ x 4′	8′ x 4′
Per Cent Open Area	71	71	71	64	64	64
U. S. Std. Ga. Steel Used	16	18	20	16	18	20



CARBON STEEL units are formed from soft open hearth steel sheets.

Finishes—Carbon steel decorative expanded metal Type R and Type F is shipped unpainted and without special finishes. Decorative expanded metal will take most any type of coating. Nickel plating, chrome plating, copper plating or a good paint job can be given to this material because it has a smooth surface and is readily adapted to high grade finishing. Both Type F and Type R decorative expanded metals can be rubber coated either by the anodic process or by dipping.

ALUMINUM units are formed from aluminum alloy type 3003-H14. While other alloy types may be adaptable to expanding, 3003-H14 was found to be best suited to the expanding operation, and was also chosen because of its wide utility, high corrosion resistance, adequate strength, and low cost.

Finish—Shipped unbuffed and unpolished.

ORDERING INFORMATION

Terminology

Type R. Regular decorative expanded metal

Type F. Cross-rolled Flattened expanded decorative metal

Example of How to Specify: USG RONDO Expanded Metal ½" #18 Type R
(For Flattened use Type F instead of Type R)

Sheet Sizes

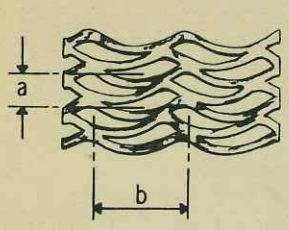
Type R: 4′ Short Way Opening (SWO) x 8′ Long Way Opening (LWO)

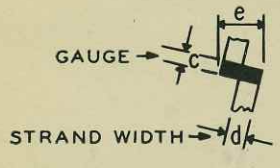
Type F: 8′ Short Way Opening (SWO) x 4′ Long Way Opening (LWO) (See below)

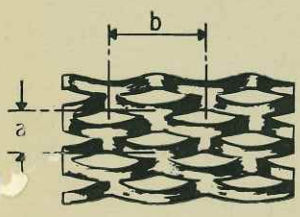
Type F is shipped in untrimmed sheets unless otherwise specified. Customer will be charged for 8′ x 4′ area but will receive oversize sheets with up to 1″ camber. (Length of Type F untrimmed sheets; up to 4″ longer in 8′ dimensions.)

Where specifically requested, Type F may be furnished Random (Type "A") sheared to 8′ x 4′. (Random shearing usually leaves prongs along both 8′ sides of the sheet.)

SPECIFICATIONS







WAVELENGTH (carbon steel)

WAVELENGTH	TYPE R—REGULAR			TYPE F—CR FLATTENED		
	½"—#16	½"—#18	½"—#20	½"—#16	½"—#18	½"—#20
Wt. Lbs. C Sq. Ft.	92	74	55	83	67	50
Design Size a x b in inches	.555 x 1.2	.555 x 1.2	.555 x 1.2	.625 x 1.2	.625 x 1.2	.625 x 1.2
Opening Size Width x Length in Inches	.438 x .938	.438 x .938	.468 x .938	.375 x .938	.375 x .938	.500 x .938
Strand c x d in inches	.060 x .103	.048 x .103	.036 x .103	.051 x .112	.040 x .112	.030 x .112
Overall Thickness e in Inches	.171	.171	.171	—	—	—
Standard Sheet Size	4' x 8'	4' x 8'	4' x 8'	8' x 4'	8' x 4'	8' x 4'
Per Cent Open Area	63	63	63	57	57	57
U. S. Std. Ga. Steel Used	16	18	20	16	18	20

ARMORWEAVE (carbon steel)

ARMORWEAVE	TYPE R—REGULAR		
	½"—#16	½"—#18	½"—#20
Wt. Lbs. C Sq. Ft.	166	133	100
Design Size a x b in inches	.6 x 1.2	.6 x 1.2	.6 x 1.2
Opening Size Width x Length in Inches	.375 x .938	.375 x .938	.410 x .938
Strand c x d in inches	.060 x .200	.048 x .200	.036 x .200
Overall Thickness e in Inches	.219	.219	.219
Standard Sheet Size	4' x 8'	4' x 8'	4' x 8'
Per Cent Open Area	34	34	34
U. S. Std. Ga. Steel Used	16	18	20

NOTES

Aluminum
Similar product data on Aluminum Decorative Expanded Metal is available upon request.

Sheet Sizes
In the tables, sheet sizes list the width of sheets first, measured the short way of opening.

Weights and Dimensions
All weights and dimensions are approximate.

HOW-TO-ORDER DECORATIVE EXPANDED METALS

Fabrication

USG Expanded Metals may readily be fabricated and formed in the same accustomed ways as sheet metals. They do not ravel when cut. They may be welded without difficulty, and absence of scale on the mesh facilitates perfect welds.

The methods referred to on page 2 to fabricate EXPAND-X Expanded Metal products are generally applicable to decorative expanded metals. However, bending decorative expanded metal on a very short radius, particularly when repeated, may cause fracturing. When bending is involved and radius of bend necessarily needs to be short, it may be well to first experiment with a trial sheet.

Designers find many delightful color combinations in using painted or anodized USG Expanded Metals in correlation with colored fabrics or other materials. Painting and other types of finishing offer no problems with USG Expanded Metals. The surfaces are readily accessible to paint. All the accepted industrial methods of application may be used. USG aluminum Expanded Metal is easily anodized.

Types of Shearing Available

(Refer to shearing diagram page 7)

SIDE SHEARING—(Parallel to long dimension of opening.)

Random (Type "A") Shearing—Cut to width (SWO) specified, with tolerance of plus or minus 1/16". This type of shearing will usually leave jagged edges.

Bond (Type "AA") Shearing—Cut on center line of first bond over specified width. Tolerance, minus 0, plus ½ diamond.

Limitations: AA shearing cannot be furnished on Type F decorative expanded metal.

END SHEARING—(Parallel to short dimension of opening.)

Random (Type "A") Shearing—Cut to length (LWO) specified, with tolerance of plus or minus 1/16". This type of shearing will usually leave prongs at both ends.

Bond (Type "AA") Shearing—Cut to length (LWO) specified, with tolerance of plus or minus 1/16". One end to be cut on center line of bond. Available on Type R only.

SQUARENESS—Maximum "out of squareness" of all sheared material (when all four sides are sheared), shall not exceed 1/16" per foot of length.

GRATE-X* EXPANDED METAL GRATING

U.S.G. GRATE-X is a heavy duty type expanded metal, made of steel plate which is slit and expanded in a cold-drawing operation.

Designed especially for use as light weight open steel flooring. GRATE-X is ideal for flooring, cat walks, platforms, stair treads, etc., where its principal use is for light storage and foot traffic. Many other practical uses are possible.

Economical—A wide selection of sizes and weights is available and its light weight, consistent with high strength makes for a most economical construction.

Extra Safety—The angular ridged surface formed by the multiple junctions of strands provides excellent antislip qualities. The closely-spaced long bond feature of GRATE-X provides greater contact area, resulting in a high traction surface, highly skid-proof yet smooth enough for wheel traffic. Water and oil drain off readily.

Large Open Area—The angular position of the strands and bonds permits free passage of light and air. Dust cannot accumulate.

GRATE-X TECHNICAL DATA

CARBON STEEL

Style (psf)	Diamond Size Width x Length	Opening Size Width x Length	Strand Size Width x Thickness	Sheet Size Width (SWD) x Length (LWD)
3.0 lb.	1.44″ x5.0″	1.09″ x3.31″	.23″ x.223″	72″ x 60″ or 120″
4.0 lb.	1.395″x5.0″	1.02″ x3.25″	.30″ x.223″	60″ x 60″ or 120″
5.0 lb.	1.143″x5.0″	.72″ x2.88″	.31″ x.223″	48″ x 60″ or 120″
6.25 lb.	1.412″x5.0″	.781″x3.125″	.284″x.380″	48″ x 96″
7.0 lb.	1.333″x5.0″	.70″ x2.75″	.40″ x.284″	48″ x 50″ or 100″
4.27 lb.	1.412″x4.0″	1.0″ x2.88″	.30″ x.243″	48″ or 72″x 96″

ALUMINUM

2.0 lb.	1.25″ x5.0″	.73″ x2.88″	.356″x.250″	60″ x 60″ or 120″

PROJECTION MESH

1.87 lb.	1.125″x5.000″	.875″x3.188″	.187″x.134″	72″x120″

GRATE-X SELECTION GUIDE

Concentrated Load (Lbs. Per Foot of Width-SWD)	SPAN 2′-0″	2′-6″	3′-0″	3′-6″	4′-0″	4′-6″
50# Occasional pedestrian loads (window washers, inspectors, etc.)	3#	3#	4#	5#	7#	7#
100# Normal pedestrian traffic	3#	4#	5#	7#	7#	
150# Heavy pedestrian traffic or workmen with light equipment	4#	5#	7#	7#		
200#	5#	7#	7#			
250#	7#	7#				

Aluminum Grate-X is also available in a 2 lb. per square foot weight made from ¼ in. sheet stock.

Special Sheet Sizes—In addition to furnishing the standard size sheets listed in the table above, GRATE-X can be furnished sheared to special sizes. Note: It is standard practice to shear GRATE-X on the first bond over the dimension specified, both SWD (Short Way of Diamond) and LWD (Long Way of Diamond).

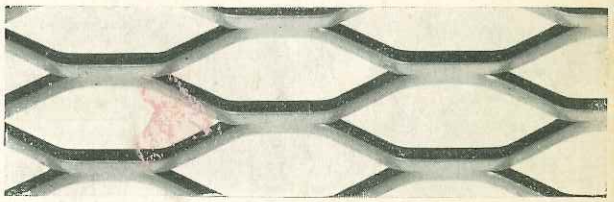
Prefabricated Grate-X Treads—GRATE-X stair treads have all the advantages of GRATE-X and are ideal for fire escapes and all types of industrial and ship stairways. The treads are completely prefabricated by U. S. G. and shipped to the customer ready for installation. The stair treads are easily installed by a simple attachment with bolts and nuts to standard steel channel stringers. Bolts and nuts for attachment are not furnished with the treads.

Tread lengths are available from 16 in. to 48 in. inclusive, in ½ in. increments. Standard widths are listed in table below.

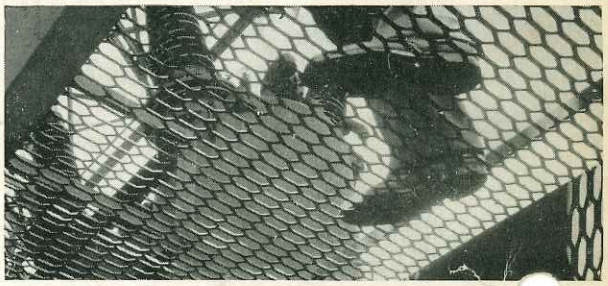
No. 4-A Tread (Made from 4-lb. GRATE-X)	No. 5-A Tread (Made from 5-lb. GRATE-X)	Dimension "A" (See drawing)
5¾″	6¼″	2½″
7⅛″	7⅜″	2½″
8½″	8½″	4½″
9⅞″	9¾″	6″
11¼″	10⅞″	7″

For complete information on GRATE-X and GRATE-X stair treads, ask for our GRATE-X catalog.

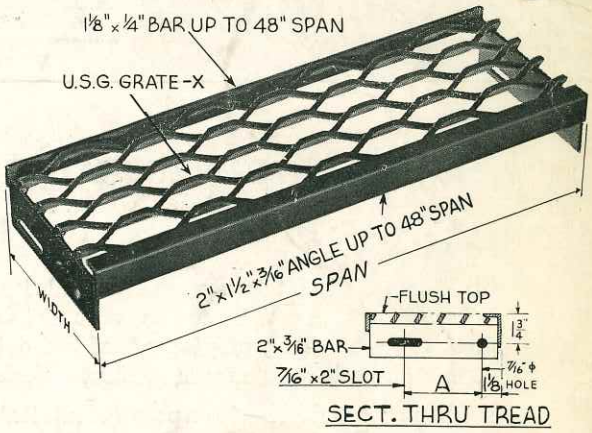
*T. M. Reg. U. S. Pat. Off.



4 lb. GRATE-X approximately ⅓ actual size.



GRATE-X permits maximum passage of air and light.



(above) GRATE-X stair tread showing dimensions "A".

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